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EXAMINER	
LEUNG, JENNIFER A	

ART UNIT	PAPER NUMBER
1797	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/731,874	LAH, RUBEN F.	
	Examiner	Art Unit	
	JENNIFER A. LEUNG	1797	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 August 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3,5-47 and 49-58* is/are pending in the application.

4a) Of the above claim(s) *11-46 and 53-58* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3,5-10,47 and 49-52* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. Applicant's amendment filed on August 26, 2009 has been considered. Claims 11-46 and 53-58 are withdrawn from consideration. Claims 2, 4 and 48 are cancelled. Claims 1, 3, 5-10, 47 and 49-52 are under consideration.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1, 3, 5-7, 9, 10, 47, 50 and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Richards (US 4,335,733).

Regarding claims 1, 3, 5-7, 9, 10, 47 and 50, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber **1**) having at least one port therein, said coke drum capable of receiving molten petroleum residuum (i.e., which would flow from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the throughput of coked material **7**.

The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Richards (generally, FIGs. 1-11) discloses a valve **1** capable of being removably coupled to a drum (e.g., a hopper **3**; see FIG. 1), said valve comprising: (1) a main body having an orifice

(i.e., defining inlet chamber **23** and outlet chamber **28**) dimensioned to align with a port of said drum when the valve is coupled thereto; (2) a valve closure (i.e., movable valve plate assembly **52**, defining a sliding blind; see FIG. 6) operably supported by said main body, said valve closure capable of being actuated to oscillate between an open and a closed position with respect to said orifice and said port; (3) a seat support system structured to support said valve closure, said seat support system comprising dual independent seats positioned opposite one another on either side of the valve closure **52** and including a live loaded dynamic seat (i.e., floating wear plate **38**; e.g., actuated pneumatically; FIG. 6) and a static seat (i.e., fixed wear plate **30**; see FIG. 6); wherein a continuously maintained metal-to-metal contact seal between said valve closure **52** and said seat support system **38,30** exists (i.e., at T-T; see column 5, lines 31-38; FIG. 11), said contact seal being capable of shearing accumulated solids upon actuation of the valve closure **52**. The valve **1** comprises a purge system operably connected to the main body, said purge system allowing a gas to be vented from the valve (i.e., via vent valve **109**; FIG. 9; column 63-64). The valve **1** further comprises an internal material isolation and containment system operably connected to the main body, wherein the material isolation and containment system allows the valve to be pressurized (see FIG. 9; column 7, lines 37-60; column 2, lines 33-45).

With respect to the newly added limitations, Richards also teaches that the seat **38** may comprise an upper seat, instead of a lower seat illustrated in the figures (see column 9, lines 24-33). Furthermore, the seat **38** would be structurally capable of moving axially while the valve closure **52** is actuated between the open and the closed positions (i.e., the plate **38** "floats" in the sense that it is free to move axially on the extensions **37**; see column 4, lines 55-57; also, column 5, lines 27-31).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Richards for the valve **15** in the apparatus of Payne et al., because the valve would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given its suitability of use in handling liquids and abrasive materials under high pressure and high temperature, as taught by Richards (see column 2, lines 46-64; column 1, lines 31-36). Furthermore, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claim 51, the term "comprises" (line 2) is open-ended and does not exclude additional, unrecited elements. Thus, the modified apparatus of Payne et al., which comprises a seat support system with two seats, meets the language of the claim.

3. Claims 1, 3, 5-8, 47 and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Fortune (US 3,367,625).

Regarding claims 1, 7 and 47, Payne et al. (see FIG. 1; column 2, line 25 to column 4, line 22) discloses an apparatus comprising: (a) a coke drum (i.e., coking chamber **1**) having at least one port therein, said coke drum capable of receiving molten petroleum residuum (i.e., which would flow from tubular heating furnace **2**); and (b) a de-header valve (i.e., closure **15**, comprising a sliding valve or other suitable closure; see column 2, line 47 to column 3, line 1) coupled to said port of said coke drum **1** for regulating the throughput of coked material **7**.

The apparatus of Payne et al. is the same as the instantly claimed apparatus, except Payne et al. is silent as to the valve **15** having the claimed configuration.

Fortune discloses a valve (generally, FIGs. 1-9) comprising: (1) a main body (i.e., valve body **A**, with circular wall **10** and flanges **8**); (2) a valve closure (i.e., slideable gate **18**, defining a sliding blind) operably supported by the main body, said valve closure capable of being actuated to oscillate between an open and a closed positioned; (3) a seat support system structured to support the valve closure, wherein said seat support system (see, e.g., FIGs. 3, 8, 9) comprises at least one live loaded seat (i.e., pressure actuated annular seat **24**; e.g., actuated pneumatically or via springs); wherein a continuously maintained metal to metal contact seal (i.e., at surfaces **25**; see column 2, lines 9-16) exists between the valve closure and the seat support system, said contact seal being capable of shearing accumulated solids upon actuation of the valve closure (see column 7, line 68 to column 8, line 3).

With respect to the newly added limitations, at least one of the live loaded dynamic seats **24** may be configured as an upper seat depending on the orientation of the valve, given that the valve comprises two live loaded dynamic seats. Furthermore, the seats **24** would be structurally capable of moving axially while the valve closure **18** was actuated between the open and closed position (i.e., by pneumatic pressurization of the reservoir **22** in FIG. 3; or by the force of the springs **77** in FIGs. 8, 9).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to substitute the valve taught by Fortune for the valve **15** in the apparatus of Payne et al., because the valve would have predictably provided a satisfactory means for isolating and regulating the flow of coked material from the coking chamber, given that the valve provides a drop-tight seal between the gate and the seats, and the valve seats are not subject to the problems of erosion and corrosion of the prior art, as taught by Fortune (see column 1, lines 13-20 and 60-

65; column 2, lines 1-8). Also, the substitution of known equivalent structures involves only ordinary skill in the art, and when the prior art is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.

Regarding claims 3, 5, 6, 49 and 50, Fortune teaches that the valve comprises dual independent live loaded dynamic seats **24** (see FIG. 3) positioned on opposing sides of the valve closure **18**. Fortune further taches that the valve comprises dual independent static seats (i.e., defined by the circular wall **10** itself; see FIG. 3) positioned on opposing sides of the valve closure **18**. Fortune further teaches at least one static seat (i.e., defined by the circular wall **10** itself; see FIG. 3) positioned opposite at least one live loaded seat **24**.

Regarding claims 8 and 52, Fortune teaches a main body **10** that is capable of contacting said valve closure **18** (i.e., by an appropriate degree of actuation of the hydraulic, pneumatic or mechanical pressurization means against seats **24**), and thereby functions as a seat in said seat support system.

Regarding claim 51, the term "comprises" (line 2) is open-ended and does not exclude additional, unrecited elements. Thus, the modified apparatus of Payne et al., which comprises a seat support system with two seats, meets the language of the claim.

4. Claims 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Payne et al. (US 2,403,608) in view of Fortune (US 3,367,625), as applied to claim 1 above, and further in view of Richards (US 4,335,733).

The combination of Payne et al. and Fortune fails to disclose the claimed purge system or internal material isolation system.

Richards, however, teaches a valve **1** comprising a purge system operably connected to

the main body, said purge system allowing a gas to be vented from the valve (i.e., via vent valve **109**; FIG. 9; column 63-64). The valve **1** further comprises an internal material isolation and containment system operably connected to the main body, wherein the material isolation and containment system allows the valve to be pressurized (see FIG. 9; column 7, lines 37-60; column 2, lines 33-45).

It would have been obvious for one of ordinary skill in the art at the time the invention was made to provide a purge system and internal material isolation system for the valve in the modified apparatus of Payne et al., because the systems help minimize and avoid wear of the valve by preventing abrasive material from getting between the plates, and further allow for temperature control of the valve, as taught by Richards (see column 2, lines 33-45; column 8, lines 8-30, 38-50).

Response to Arguments

5. Applicant's arguments filed on August 26, 2009 have been fully considered but they are not persuasive.

Applicant (at page 16, second paragraph, to page 17, first paragraph) argues that Richards fails to disclose a live loaded upper seat, wherein the live loaded upper seat is structured to move axially while a valve closure is actuated between the open and the closed position. In summary, Applicant argues that the continuous hydraulic pressure against the floating seat **38** holds the seat in a rigid axial position, and therefore, the floating seat **38** cannot move axially while pressurized to accommodate variance in the surface of the valve closure as the valve closure is opened.

Applicant (at page 18, first and second paragraphs) similarly argues that Fortune fails to disclose a live loaded upper seat, wherein the live loaded upper seat is structured to move axially

while a valve closure is actuated between the open and the closed position. In summary, Applicant argues that upon hydraulic actuation (i.e., by pressurization of the annular reservoir **22** of the piston member **21**), the floating seat **24** is pressed against the valve closure, and the seat is not capable of moving in an axial plane as the valve closure is opened.

The Examiner respectfully disagrees.

Firstly, Applicant's specification (e.g., at page 12, last paragraph; with emphasis added) defines a "live loaded seat" as follows:

> "In a preferred embodiment, the seat support system advantageously provides a floating seat concept to the de-header valve using at least one dynamic, live loaded seat. This floating dynamic, live loaded seat is continuously loaded against the valve closure to create a biased relationship between the seat(s) and the valve closure. *The floating seat concept is accomplished using one or a combination of biasing members, such as heavy coil springs arrayed at close centers around the perimeter of the seat ring; externally live loaded and sealed seat force applicators arrayed at quadrants around the floating seats; and/or a full perimeter flexible inconnel bellow seal spring placed between the floating seat and the seat retaining ring.* A floating or dynamic seat provides many advantages, a primary one being that the seat support system and the valve closure are able to flex and distort in response to the rigorous and changing pressures and forces induced thereon during the coke manufacturing process and filling of the coke drum."

The Richards valve comprises a "live loaded seat" according to Applicant's definition. In particular, the Richards valve (see, e.g., column 4, lines 50-65) similarly provides a "floating seat concept" by using a biasing member (i.e., a loading ring **42** actuated by fluid under pressure supplied to the passageway **43** through a conduit **43a**; FIG. 9) placed between a floating seat (i.e., a floating wear plate **38**) and a seat retaining ring (i.e., a lower cylindrical body member **24** having an extension **37** at its upper end).

In addition, the Fortune valve comprises a "live loaded seat" according to Applicant's definition. In particular, the Fortune valve similarly provides a "floating seat concept" by using a biasing member (i.e., an annular piston member **21** actuated by pressurizing the annular reservoir **22**, as in FIG. 3; alternatively, an annular piston member **12a** actuated by spring **77**, as in FIGs. 8, 9) placed between a floating seat (i.e., a seating plate **24**) and a seat retaining ring (i.e., defined by integral housing **9**; FIGs. 3, 8, 9). (see column 4, lines 60-68; column 6, lines 32-57; column 6, line 66 to column 7, line 48).

Secondly, Applicant argues that the prior art's specific use of hydraulic fluids for biasing a floating seat renders the seat rigid and incapable of any further axial movement.

The Examiner respectfully disagrees and maintains that the floating seats in the Richards and Fortune valves would be structurally capable of exhibiting axial movement.

For example, Richards discloses that the pressure of the fluid used for biasing the floating seat is maintained at a given value by a pressure switch **43d** connected to the conduit **43a** for controlling the circuit **43e** of the motor of the pump **43c**, and an adjustable pressure relief valve **43g** (see FIG. 9; column 5, lines 1-15). The floating seat would be capable of exhibiting axial movement, e.g., when excess fluid was discharged by conduit **43j** into the sump **43b** to maintain the set pressure.

In any event, Richards specifically discloses that the plate **38** is free to move axially on the extensions **37** (see column 4, lines 55-57; also, column 5, lines 27-31).

It is further noted that the biasing means is not limited to hydraulic fluids. Richards discloses that the loading ring **42** may be actuated pneumatically, wherein gas or air pressure is used as the pressurizing medium (see column 4, lines 62-66). As well known in the art, gas or

air is compressible, and therefore, a floating seat that is pneumatically biased would be capable of exhibiting axial movement upon compression of the gas or air. The degree of axial movement could be varied by adjusting the pressure of the gas or air. Fortune similarly discloses that the annular piston member **22** (FIG. 3) may be actuated pneumatically (see column 4, lines 20-25). Alternatively, Fortune discloses that the annular piston member **12a** (FIGs. 8, 9) may be actuated by springs **77**. As well known in the art, springs are compressible, and therefore, a floating seat that is biased by springs would be capable of exhibiting axial movement upon compression of the springs. The degree of axial movement could be varied by adjusting the spring tension. Applicant's invention similarly employs springs (specification, at page 12, last paragraph).

Lastly, with respect to the newly added limitation of a live loaded "upper" seat, Richards also teaches that the seat **38** may comprise an upper seat, instead of a lower seat illustrated in the figures (see column 9, lines 24-33). In Fortune, at least one of the live loaded dynamic seats **24** may be configured as an upper seat depending on the orientation of the valve, given that the valve comprises two live loaded dynamic seats. When coupled to the bottom of a coke drum in the apparatus of Payne, for instance, one of the seats **24** in the Fortune valve would comprise a live loaded "upper" seat.

Conclusion

6. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO

MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

* * *

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JENNIFER A. LEUNG whose telephone number is (571) 272-1449. The examiner can normally be reached on 9:30 am - 5:30 pm Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Walter D. Griffin can be reached on (571) 272-1447. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jennifer A. Leung/
Primary Examiner, Art Unit 1797